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# EXECUTIVE SUMMARY

# Introduction

Work Package 5 has been designed to coordinate and carry out a number of proofs of concept (PoCs) using a number of pilot deployments allowing end users in the Digital Cultural Heritage community to store, access and manage digitalized facsimiles of artifacts of human culture using contemporary distributed IT infrastructures. While the coordination of the piloting work is a necessary part of this work package, the true core of this Work Package is to conduct the proofs of concept, and its main outcome are the results and lessons learned that are produced by these proofs of concept.

These PoCs will be influenced by two major sources of input: Work Package 3 (Preservation Roadmap) formulates milestones that need to be achieved and technical requirements that must be satisfied to progress along the preservation roadmap over the next couple of years. The areas of interest of the Preservation Roadmap will be, among others:

1. What are the short, medium and long-term milestones for preservation infrastructure through 2014, 2016, 2018 for the following?
	1. Harmonisation of data storage and preservation?
	2. Progress for inter-organisational communication?
	3. Establishment of conditions for cross-sector integration?
	4. Governance models for infrastructure integration?
2. Standards – what impact do emerging and established standards have on the intended solutions
3. Registry of tools and services – how useful is the pilot registry
4. Trust building activities – to what degree do the pilot systems contribute to trust building?
5. Best practices, per country, per domain, per technology
6. Interoperability – see MINERVA project for examples. The proof of concept trials should address the following issues at least to some degree:
	1. Technical
	2. Semantic
	3. Political/human
	4. Inter-community
	5. Legal
	6. Internationality

While WP3 defines the common technical parameters and, to a certain degree, the goals of the PoCs (“*How* is it contacted?”) WP4 (Case Studies and Best Practice) complements this by providing the context, material, and workflows for the various domains within the DCH community (“*What* needs to be processed and how do users do that?”).

For a large part, these Proof of Concepts share many principles and best practices with software quality assurance and software engineering activities that are regularly carried out before any piece of software is released for general availability. The coordination aspect of this work package introduces suitable techniques and tools, processes and guidelines in order to ensure that the work carried out as part of the PoCs are repeatable, auditable, and suitable as input into the preservation roadmap developed in Work Package 3.

## Objectives of the deliverable

This document provides the main output of Task 5.1 and captures the planning work for the PoCs to take place over the next phases of the project. The scope and actual content of this document are limited by design; rather, it is designed as a “book of guidelines”, processes and tools that the actual proofs of concept activities should follow. This is because the overall planning work covers both shared and disparate aspects of technical activities: The partners in Work Package 5 conducting the pilot work will do so using domain specific data and workflows (e.g. musea with digitalized paintings, digitalized 3D objects, contemporary digitalized art, films, literature archivists, music archivists, anthropologists, etc.), and thus are likely to use domain specific data formats, metadata descriptions, and many more different aspects. The planning pertaining to domain specific activities within the Proof of Concepts are left with the respective partners and will be informed mainly by the input coming from Work Package 4. This domain specific planning will be captured elsewhere as it is much more dynamic in nature and requires a different approach than a fixed document against which the activities are conducted.

Instead, this document will capture the *common structure and processes* with which the PoCs will be planned, conducted and documented. Mainly informed by the input from Work Package 3, Deliverable 5.1 establishes the processes by which the experiments and tests ensure that the technical requirements of data preservation will be covered and results documented.

## Structure of the document

The remainder of this document is divided into two parts and an annex as follows.

Section 3 describes in sufficient detail the common processes, tools and methodology of how the Proofs of Concept will conduct their work. Based on established agile project management methodology, a highly iterative approach has been chosen to establish a continuous evolution and improvement of the pilot activities. The idea behind this approach is that while the end-goal is clear (a complete roadmap for DCH preservation in the coming decades) a highly iterative approach allows gathering and documenting first results early on for public dissemination and information, and thus allowing for intervention and changing direction very quickly if necessary without significant loss of effort.

Section 4 describes the individual Proofs of Concepts on a high level, which specific domain is targeted, which tools are tested and for what reason, and the overarching goals that these specific pilot activities wish to reach. This section does not constitute a complete planning document for the Proofs of Concept; it is included in this document to ensure that there is sufficient spread of activities across DCH domains, and necessary but not excessive overlap in effort to be able to identify tools and services that may be re-used across domains.

This document concludes with a summary of the identified plans, and gaps, and the next immediate actions to progress towards practical experiments with the envisioned Proofs of concept.

Attached to this document, Annex A provides additional background information on the Agile Project Management methodology that forms the basis of the processes established in this Work Package.

# Methodology, Tools and Processes

## Audience and stakeholders

The DCH-RP project aims to play an important role in taking forwards the adoption of e-Infrastructure as a computing platform by the DCH research community. The following table describes the stakeholders for technical plan and its outputs. The term stakeholder in this context refers to the audience and participants of the proofs of concept experiments.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stakeholder | Participant/ Observer | Role | Area of interest | Importance of information |
| EGI.eu | P | Task leader | All | High |
| INFN eCSG | P | Science Gateway provider | Interfaces, usage, requirements | High |
| WP4 | P | Provider of Case Studies and Best Practice | Functionality of experiments, usability results | Medium |
| WP3 | P | Developer of Roadmap | All aspects of results as defined in scope | High |
| WP2 | O | Dissemination and sustainability | Success stories and lessons learned from tests, validity of results | High |
| WP1 | O | Project Management  | Effectiveness and success of the tests | High |
| Cultural Heritage institutions | O | Prospective partners in the services and end users of the services | Usefulness and usability of the new services, security and reliability of new services, interoperability | Medium |
| Cultural Heritage services end-user community | O | Prospective users of the new services | Usefulness and usability of the new services, range of services | Medium |
| e-Infrastructure providers | O | Potential hosts for these new services | Applicability of new services, usability, ease of configuration, scalability | Medium |
| General public | O | Potential users, general interest in topic | Awareness that the domain of digital cultural heritage is evolving swiftly | Low |

Table 1: Stakeholder of the WP4 activities

This diverse set of stakeholders calls for a very open and flexible way of conducting the activities in Work Package 5.

The diversity in interest in the work package activities requires different approaches in communicating the results. Stakeholders with relatively low interest in the proceedings of Work Package 5 are expected to be interested in comparatively infrequent but complete reports provided in referencable material, such as papers, or documents, project deliverables and milestones. On the other end of the spectrum, stakeholders with high interest are likely to appreciate frequent updates of anything that happens within this work package, even if it is incomplete or incremental information.

The sheer number of stakeholders indicates that we can expect a good deal of communication and dissemination. Although Work Package 2 is dedicated to project wide activities in this direction, the effort within WP5 dedicated to communication and dissemination should be minimized as much as possible. Choosing the right set of tools that are able to support and automate interactions between work packages, between activities is essential. Essentially, the success of this work package is strongly influenced by the *communication and collaboration between people*; collaboration tools and methodology should satisfy this prime requirement.

## Agile Project Management vs Waterfall model

Classic project management organizes work in well-defined sequential phases. Commonly known as the “waterfall model”[[1]](#footnote-1) this methodology assumes a well-known and complete understanding of the problem space before any work is undertaken. Derived mostly from manufacturing processes, the waterfall model assumes that work linearly progresses until the planned outcome is achieved. This requires meticulous preparation, documentation and collection of requirements and specifications against which the process will produce its result.

In the real world however, particularly in science projects of exploratory nature such as the DCH-RP project, not all preconditions and requirements of the overarching objectives are known in the beginning. Such environments call for a much more resilient and flexible way of project management. In general, all agile project management methodologies share the fundamental concept of feedback loops in iterative cycles of activities. The idea behind this model is that high-frequent iterations ending in feedback activities allow for quick interventions and corrective measures where required, and to adjust the direction of the project or some of its activities.

This paying respect to and embracing the unknown at the beginning that is common among agile methodologies is recognizable on all ends. Frequent iterations are only one aspect; concepts such as retrospective assessment, “planning poker”[[2]](#footnote-2), regular “stand up meetings”, “user stories”[[3]](#footnote-3) and product backlogs all pay attention to:

* Knowledge must be shared among all members of the agile managed activity
* Regular supervision of the past iteration and actions for process improvement
* Stakeholder satisfaction
* Use of domain language as much as possible (contributes also to stakeholder satisfaction)
* Diversity in participants skill set is a benefit, not a drawback

Considering the diversity of members in this project, and particularly in Work Package 5 agile activity management promises the effectiveness and result orientation that is necessary for the success of the project.

## Timetable for activities

The detailed time planning needs to keep into account the preparatory planning, necessary technology activities and dependencies. As most of the PoCs will include the e-Cultural Science Gateway (eCSG) in their activities (see section 4 for more detail) the proper upgrade and deployment of this portal is a significant dependency for the progress of this Work Package.

Detailed technical planning for the Proofs of Concepts must take this into account, as well as potential risks pertaining to availability of cultural data, as well as the e-Infrastructure to work with the cultural data.

### Contractual work packages deliverables and milestones

The following milestones and deliverables are contractually agreed and as such non-negotiable elements of the work plan:

* D5.1 – Technical Plan (M3)
* D5.2 – Upgraded eCulture Science Gateway (M6)
* D5.3 – Report on first Proof of Concept (M12)
* D5.4 – Report on the second Proof of Concept (M21)
* MS12 – Technical planning (M3)
* MS13 – eCulture Science Gateway upgraded (M6)
* MS14 – First Proof of Concept completed (M8)
* MS15 – Second Proof of Concept completed (M15)

The deliverables constitute the formal and final written records of Work Package 5. The corresponding milestones are designed as points in time by when the described activities are planned to conclude; the results of such activities then feed into the preparation and finalization of the respective deliverable. It is for this reason that most of the milestones are timed in advance of the formal project deliverables.

Therefore, the milestones can be relaxed if in turn the deliverables’ deadlines are carefully observed. In fact, when applying agile activity management techniques, the effort of running the proof of concepts, documenting tasks and results is leveled out much more evenly over the whole duration of the planned Proofs of Concept periods while increasing communication between stakeholders and delivering a constant stream of results. Table 2 provides an overview of the planned phases of the activities within Work Package 5.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Month** | **M1** | **M2** | **M3** | **M4** | **M5** | **M6** | **M7** | **M8** | **M9** | **M10** | **M11** | **M12** |
| Activity | Agile iteration planning and facilitation |
| Technical plan |  |  | D5.1 |  |  |  |  |  |  |  |  |  |
| Activity |  |  |  | Proof of Concepts without eCSG |  |
| Upgraded eCSG |  |  |  |  |  | D5.2 |  |  |  |  |  |  |
| Activity |  |  |  |  |  |  | Proof of Concepts using eCSG |  |
| Prepare first report |  |  |  |  |  |  |  |  |  |  |  |  |
| First PoC report |  |  |  |  |  |  |  |  |  |  |  | D5.3 |
| **Month** | **M13** | **M14** | **M15** | **M16** | **M17** | **M18** | **M19** | **M20** | **M21** | **M22** | **M23** | **M24** |
| Activity | Agile iteration planning and facilitation |  |  |  |
| Activity | Proof of Concepts without eCSG |  |  |  |  |
| Activity | Proof of Concepts using eCSG |  |  |  |  |
| Prepare second report |  |  |  |  |  |  |  |  |  |  |  |
| Second PoC report |  |  |  |  |  |  |  |  | D5.4 |  |  |  |

Table 2: Chronological planning of WP5 activities

As illustrated, the activity planning and coordination will take place over almost the complete project duration: In agile project management, planning continuously aligns current activities with the goals of the project that may (or may not) change. Frequent iterations and re-aligning with a more complete knowledge of the Proofs of Concept (i.e. the “problem space”) must accompany the actual work carried out by the partners in WP5 conducting the Proofs of Concept

## Roles and actors

In agile-managed projects, three key roles are working together to reach the objectives of the project. Together they *steer*, *facilitate* and *execute* the necessary work until the end of the project.

### Product owner

In pure agile projects the *product owner* is a single key person equipped with the authority to steer the direction of the project and its outcomes. The product owner does so by ensuring a constant supply of background material and user stories coming from the target domain of the product. The product owner further prioritises user stories and thus steers, which topics and tasks in the project shall be, tackled first and which later. Finally, the product owner is empowered to accept or reject a delivered solution to a task in the sprint review meeting (see below) and must be prepared to report on this to the users and customers she is representing in the project.

While the product owner is often and by design and intent one single person, it is at times practical to accept two, rarely three, product owners in a project. However, if done so that instigates the obligation on all appointed product owners to commit to intensive communication with each other and to speak with one voice towards the other roles in the project.

### Facilitator

The *facilitator*, in the agile SCRUM methodology also called SCRUM Master, fulfills in agile projects the role of a project manager in classic project management. The key objective of the facilitator is to enable the product owner and team (team members, really) to work as effectively as possible. The facilitator is expected to do so by providing the tools, processes, techniques and reports on the project, but *not* the content. This is the duty of the product owner (see above) and, most significantly, the team.

The Facilitator calls for and chairs meetings, plans sprints and communicates intensively with the product owner and the team. The facilitator also regularly reports to the *project sponsor* (see below). One key activity of the facilitator is to maintain the project backlog as accurate as possible, and both the team and the product owner are obligated to provide the necessary information as requested by the facilitator.

### Project team

The project team comprises of individuals carrying out the work that is captured in the project’s backlog, tasks and sprints. It is desirable that the skill sets of the team members are diverse, but not disparate, with sufficient overlap. Otherwise, the project bears the risk of domain specialists incapable of understanding each other, thus impeding the common commitment and progress of the whole project.

The team is considered to act as one unit, and is expected to organize itself over the course of the project. The product owner(s) and the facilitator are always available for the team to resolve issues and problems for them.

### Project sponsor

Often overlooked, the project sponsor is the entity that provides the financial backing and strategic authority to grant the project to take place. It is the authority involved in team recruiting & management, risk management and financial management of the project. In case of disputes the project sponsor is the arbitrating instance between product owner, facilitator and the team, and if necessary the project sponsor is the entity may decide to shut down a project at any time.

In smaller projects, it is often the same (group of) people exercising the roles of project sponsor and product owner even though they provide distinct value. Larger projects are often hierarchically organized as agile projects of agile sub-projects (in the SCRUM methodology called “SCRUM of SCRUMS”), where the parent project acts as project sponsor to all its sub-projects.

## Agile Toolkit

Key fundamental principles of agile project management methodologies are *dedication, communication* and *collaboration*. These three social functions enable the team members to achieve the goals and objectives the team aspires to reach. All techniques and tools employed in agile methodologies are used as *facilitators,* i.e. supporting and encouraging communication and collaboration – which cannot happen without *information*. Thus, information needs to be provided and maintained, and made publically available for anyone interested.

Not all agile tools and techniques are applicable to this project and work package. Common agile management seeks to bring the agile team physically close together to maximize team dynamics and effectiveness. This physical proximity allows employing certain agile techniques, such as daily stand-ups daily peer-review of work. Albeit not impossible it will be difficult to introduce such activities in a distributed project setup such as DCH-RP. After careful consideration the following agile techniques and tools will be used to conduct the work in Work Package 5. They are not documented in full detail; they are captured in this deliverable with respect to the intent of the tool and the applicability to this project.

### User Story

A User Story captures a metaphor of value of the system to the end user. User Stories are not intended to provide full documentation, they should remind the team members of what needs to be captured and taken care of. In essence, User Stories should be seen as the start of a *discussion* between team members, forming a commonly shared mindset across the team about what the outcome is supposed to deliver.

User Stories are related to Use Case descriptions; User Stories are by intent kept in the narrative language of the target domain (i.e. in this project, the language and terminology of the DCH community) albeit somewhat informal in their content. Use Cases, on the other hand, provide more formal information on the interaction of the user with the system – within the scope of this project that would be the DCH institute managers and colleagues who use the system to *preserve* and *publicise* DCH data for other users to work with.

User Stories will have to provide three aspects: A title, the description, and a “definition of done”. A number of guidelines exist on how to write good user stories, and these will be provided to project partners elsewhere. However, the title captures the essence of the user story, the description establishes the metaphor capturing the aspired customer value, whereas the third section (the “definition of done”) essentially provides a description of the acceptance criteria and/or indicates test descriptions, answering the question “How and when will we know that this user story is satisfied?”

User stories are continuously provided and refined by the product owner of the project.

### Epics

In large, complex projects, it can become difficult to find the right metaphor to capture customer value purely in User Stories. A common activity in agile projects is breaking down User Stories in better-scoped sets of User Stories. With the number of User Stories growing, patterns and clusters of related User Stories begin to emerge. To keep an overview of the knowledge space, such User Story clusters are grouped into “Epics”, each describing the overarching goal.

Both User Stories and Epics are subject to prioritisation by the consuming stakeholders – in the DCH-RP project that translates to WP3 and WP4 – influencing and steering how WP5 will conduct its work.

Epics – if applicable – are often a collaborative work of the product owner and the team.

### Tasks

Tasks are central work planning artifacts and describe what needs to be done in order to satisfy the supplied user stories. Often, User Stories are turned directly into Tasks. During the course of a project tasks emerge that capture routine work, at times called chores that are not directly linked to user stories. Nonetheless these routine tasks need to be discussed in the regular sprint planning meetings, and tracked throughout the sprint execution.

Central to agile management is a concept of capturing the necessary effort to accomplish the task in an abstract manner called *story points*. The more story points are assigned to a task, the more effort is deemed necessary to complete it. A number of story point schemes are popular and neither is superior to others. The two post popular schemes are a linear scheme, and a Fibonacci scheme. The linear scheme is very easy and assigns story points based on the linear scale from 0 to 10. The Fibonacci scheme (or derivatives) uses the Fibonacci numbers (including 0) up to 13 (i.e. 0, 1, 2, 3, 5, 8, 13). Fibonacci scheme variations then often utilize the numbers 20, 40, 60, 100 as risk management flags (see below).

Tasks are the entire responsibility of the product team alone; by adding to or removing tasks from the backlog, and adding to and removing tasks from sprints the team takes responsibility and commits to the progress of the project.

### Backlog

During the course of the agile managed project the team keeps track of all tasks in an artifact called *project backlog*. This project backlog is pivotal to the success of the managed project and captures the following concepts:

* Project scope and complexity
	+ Complete picture of all user stories and epics
	+ Complete documentation of all tasks
	+ Prioritisation
* Historic information
	+ Completed tasks
	+ Past sprints
* Project management
	+ Current project velocity and team capacity
	+ Project duration projection (velocity to remaining story points ratio)
* Risk management
	+ Which tasks are not prioritized
	+ Which task are flagged as insufficient (using story point risk markers)
	+ Prioritisation to keep project duration projection in scope with hard deadline

The information presented in the backlog is kept at a minimum but facilitates exercising the above-mentioned concepts based on that information given in it. It is often maintained as an overview document providing pointers and references to detailed information stored elsewhere. This document/artifact is updated very frequently, reflecting the project’s agile activities. It must be kept as accurate as possible.

The backlog is the key tool used and maintained by the project facilitator.

### Sprints and sprint planning

A sprint in agile project management captures a single unit of organized collaborative work. An agile project as a whole is organized as a series of consecutive sprints in a forward-chain towards the end of the project. Agile-managed projects typically end either when all tasks are completed (value-oriented open ended projects), or with a deadline defined and agreed prior to the start of the project (time-constrained projects). Obviously, the DCH-RP project is a time-constrained project, so risk-management and prioritisation become more important than feature inclusion.

Sprints have a fixed structure in agile project management and it is of paramount importance that this structure is kept at all times. Otherwise, the project is in danger of wasting excessive effort on structure and management rather content. Even though an agile project would not be agile if the sprint structure would not be eligible to change, changes should nonetheless be introduced carefully and gradually in order to maximize the team’s effort and output (as measured by its velocity).

Sprints shall be planned to identical length. Although deviations are common they must be kept to a minimum, reducing impact on the team rhythm and velocity calculation. In each sprint, the following phases and meetings take place, in the following order:

1. **Sprint Planning**

This meeting involves all team members. In this meeting, team members discuss tasks listed in the project backlog that are prioritized. The team discusses unestimated tasks one by one until it reaches a common understanding on the necessary effort. It is the team’s responsibility to capture discussion outcomes wherever and however it deems appropriate for further reference. Once agreed, the team estimates the effort by assigning story points to the respective task. If the team cannot agree then a risk flagging estimate will be assigned (i.e. estimates greater or equal to 20) for further assessment. The goal is to provide the team with enough work to do for the planned sprint – but not more. This is done by including as many estimated tasks into the sprint so that the sum of story points does not exceed the current team velocity. Usually, the team will discuss tasks according to priority, and picks those that will be tackled in the current sprint. It is important that the whole team agrees, as the whole team will commit to this work plan for the current sprint.

The outcome will be recorded in the backlog (i.e. which tasks will be tackled in which sprint) and the meeting will close.

Sprint planning meetings should not take more than a couple of hours (half a day at max), albeit teams new to agile project planning tend to need more time in the beginning.

Participants of a spring planning meetings are the Facilitator and the complete Project Team. The Product Owner is optional, but highly recommended to participate. Observers are allowed to attend, but not permitted to interact with or influence the participants. The Facilitator is empowered to exclude observers from the meetings, whether temporarily or permanently.

1. **Sprint Execution** (i.e. working on tasks)

This phase comprises the majority of the time in the sprint. During that time the team is working on the tasks agreed upon in the sprint planning meeting.

*The team will work in a self-organising manner and as independent and uninterrupted as possible during this phase.*

Tasks will be worked on, and marked as complete by the team members. As a general rule, every task outcome will be reviewed by another team member; when rigorously followed this process ensures not only built-in quality assurance but also facilitates the common and complete understanding of the project within the team.

Tasks are usually not assigned to team members; instead Team Members proactively take tasks and mark their name on them to indicate that they are working on them. When they are done, they mark them as *Delivered*, waiting for the peer review. Once that is done,

1. **Sprint Review**

At the end of every sprint, the Facilitator calls for a sprint review where the Project Team reports and presents to the Product Owner what has been achieved in the ending sprint. Participants also discuss what was *not* achieved, problems and missing information related to the project. The Product Owner determines whether the work pertaining to a task or user story is accepted or not. The Facilitator records these decisions in the affected tasks and user stories. Project Team and Product Owner are responsible for taking notes by themselves; meeting minutes are considered not providing value to the project in agile project management.

Tasks rejected by the Product Owner are put back into the Project Backlog and marked as not done. Tasks that are accepted by the Product owner are marked as finished. When all tasks that are part of the current sprint were reviewed, the story points of all finished tasks are summed up to the *sprint performance*. The last step in the Sprint Review is the calculation of the *Team Velocity* as the average over the sprint performances of the last three sprints. This updated velocity will then be recorded and used for planning the upcoming sprint.

If time permits, the Project Team and the Product Owner can further work on User Stories and Tasks, Prioritisation, Task estimation and any project related topics.

Sprint reviews should not last longer than half a day; if team velocity and achieved tasks indicate that more time might be needed the meeting material should be prepared to keep the half-day limit.

The participants of the Sprint review are the Product Owner, Facilitator and the Project Team; attendance is compulsory. Again, observers are allowed with identical restrictions as described above.

1. **Sprint Retrospection**

The Sprint Retrospection is the only optional component of a sprint. Albeit allowed, it is strongly discouraged to skip this phase of the sprint.

As with all other meetings the Facilitator chairs the Sprint Retrospection meeting; attendance is compulsory for the Project Team. This is the only closed meeting where no other participants and observers are allowed.

The objective of the Sprint Retrospection is to continuously optimize group dynamics, communication, processes, and methodology; anything that helps improving the team’s overall sprint velocity. Nothing is out of scope when the team believes that a change will contribute to their overall satisfaction and happiness (which in turn have a positive effect on the team velocity). Guided by the Facilitator, the Project Team Members examine the passed sprint and identify “the good, the bad, and the ugly”. Things that went (perhaps horribly) wrong, and things that went (hopefully very) well, are discussed in an open and encouraging atmosphere (for which the Facilitator is responsible). From that discussion, the Project Team agrees on a number of changes that each and every team member will commit to.

These outcomes are recorded[[4]](#footnote-4), but kept from wider circulation – it is the Product Teams own material to organize itself, not for others to interfere with. The Facilitator, however, is allowed to use that material for subsequent retrospection sessions to be able to guide the meeting and bring the team’s attention to patterns of issues that otherwise might be undetected.

Therefore the material is kept separate from other, otherwise public information. In the (rare) event of intervention through the Project Sponsor, the Product Team may decide to disclose the material coming out of the Spring Retrospection meeting.

## Collaboration tools

Work Package 5 will make use of a number of collaborative tools that are provided by EGI.eu as part of their contribution to the DCH-RP project[[5]](#footnote-5). These have been proven very useful to EGI.eu and the EGI-InSPIRE project as tools to facilitate collaboration in project management, documentation, and coordination. After consideration the DCH-RP project management decided to take that offer and make these tools available for all project members.

The DCH-RP project is pursuing two objectives with this integration:

1. Provide the project work packages and members with a powerful set of collaboration tools, and
2. Evaluate the available tools for inclusion in the preservation roadmap, which is the key output of Work Package 3.

The following subsections briefly illustrate each tool, and what it is used for within the DCH-RP project.

### Single sign-on (SSO)

This tool provides the central integration point of all other offered tools. It is a facility providing login credentials to potentially unlimited numbers of individuals. Next to identity management this tool provides user groups, managed by group owners. Users can be added and removed to any number of groups. Identity is fundamentally linked to valid Email addresses. Each user can freely choose a username for as long as it is unique at creation time. This has the consequence that a user has to register and deregister when his or her Email address changes. Although this may happen, it usually happens infrequently, and the transition to a new Email address is typically fully accomplished fairly swiftly.

The key integration point with other tools is the groups and group membership information provided by this service.

The EGI SSO service is accessible at [https://www.egi.eu/sso](http://www.egi.eu/sso) for anyone with an SSO account. SSO group owners manage SSO groups and membership through the same address.

### Mailing lists

For each SSO group exactly one mailing list may be enabled. All mailing lists are operated using the Open Source tool “mailman” and inherit their names from the SSO group, under the common Mailing List server “mailman.egi.eu”. Consequently, the mailing list for the SSO group “dchrp-all” is “dchrp-all@mailman.egi.eu”. All mailing lists offer the feature-rich standard mailman administrative interface.

Mailing list membership is managed through SSO group membership; when adding an individual to a specific SSO group, and a mailing list for this SSO group is enabled, that individual will be automatically subscribed to that mailing list. Conversely, if an individual is removed from an SSO group, mailing list membership will be revoked, too. This functionality is the same for all integrated collaborative tools provided by EGI.eu.

Currently it is not clear whether the DCH-RP project will make extensive use of mailing lists (and SSO groups). It is currently foreseen to provide a general mailing list and one mailing list per DCH-RP work package. This pattern has proven useful for the EGI-InSPIRE project to limit the amount of Emails people receive that are not within their scope of work.

With respect to WP5 a scoped SSO group and mailing list will be implemented and used as general Email based coordination across the work package.

### Wiki

Using the popular Mediawiki software EGI.eu offers Wiki functionality to the DCH-RP project. As with all other integrated tools, the Wiki user accounts are managed through the EGI SSO functionality. For the DCH-RP project a separate namespace (“DCH-RP:”) was implemented. While read access to this Wiki namespace is public, all members of the “dchrp-all” SSO group automatically have write access to this namespace (but not to the default, or any other namespace). While the DCH-RP project shares the same Wiki service instance with all other customers, the project has exclusive change control over all Wiki entries within its own namespace.

Work Package 5 will use the Wiki as a collaborative workspace for any kind of documentation with high to medium update frequency. We expect to store and maintain user stories, tasks and epics in the Wiki, as well as any feedback and rationale provided by product owners for accepting or rejecting tasks during the sprint reviews. Additional task related information, such as sub-tasks (if any), notes, etc. will be stored together with the notes.

The DCH-RP specific Wiki is accessible at the address [https://wiki.egi.eu/wiki/DCH-RP:Main\_Page](https://wiki.egi.eu/wiki/DCH-RP%3AMain_Page)[[6]](#footnote-6).

### Document database

### Meeting planner

### Discussion forum

### Blog

The major contributions to Work Package 5 will originate from Work Package 3 and Work Package 4 as necessary material for Work Package 5 to digest into actionable tasks. While the bulk of these contributions will be provided as background material that is expected to evolve in an iterative manner, WP3 and WP4 are expected to capture that material in metaphors described in User Stories and Epics (see below) as ancillary material.

Agile activity management artefacts

* User stories
* Backlog
* Iteration & Team Velocity
* Tasks
* Stand-ups and peer-reviewng
* Reporting

## Iterations and Continuous testing

This provides a rough outline of the first steps common to all Proof of Concepts, applying the tools and techniques described in section 3.4

# Proofs of Concept (PoC)

*<<This is the section where we need input from the partners conducting the Proofs of Concepts. Some input was already sent, which is obviously not integrated yet.*

*The objective of the input are:*

* *Provide the specific PoC objective*
* *The scientific domain (see introduction for examples)*
* *Envisioned tools and technical architecture of the overall tool chain*
* *Outline description of the external infrastructure that is expected to be used (as opposed of providing it directly)>>*

## Italy (INFN, ICCU)

*<<Contribution was sent, but is pending integration>>*

## Sweden (RA)

### Pilot lead partner

**Digisam** is a secretariat for National coordination of digitisation, digital preservation and digital access to cultural heritage. In order to coordinate the continued development work on digitisation issues, and to coordinate the activities connected to the National Digital strategy within the timeframe of 2012-2015, the government has established a coordinating secretariat for digitisation, digital preservation and digital access to the cultural heritage – Digisam. Digisam started its work in the autumn of 2011 and is organized as a department at the National Archives of Sweden. The main task is to promote the achievement of the objectives of the national strategy for digitisation.

**Riksarkivet** is the formal the DCH-RP project partner; Digisam, established by and with a direct task from the Sewdish Government, is a first level department in Riksarkivet and as such will lead the contracted Proof of Concept activities within Work Package 5.

### Environment and constraints of the pilot

According to the Description of Work the Swedish partner in the project, the National Archives will organise concrete experiments of the concepts established by WP3, with e-infrastructure facilities provided by the NGI. After the first plenary meeting of DCH-RP where project partners discussed on which kind of DCH material would be interesting to use for the experiments, Digisam has been in contact with following cultural heritage institutions that all showed interest in participating in experiments with their data:

* The National Archives
* The Museums of World Culture
* The Swedish Museum of Natural History
* The Authority of the three museums:
	+ The Royal Armoury,
	+ Skokloster Castle
	+ The Hallwyl Museum
* Swedish National Museum of Science and Technology
* National Maritime Museums
* The Institute for Language and Folklore
* The Swedish museum of Architecture

In the cultural heritage sector there are today different preservation requirements. Currently, there are often no specific routines and support processes for the management of cultural heritage information in digital form in order to prepare it for long-term preservation. Often there is also a lack of resources for the development and management in terms of procedures for creation of digital management, procedures for selection processes, and quality assurance. In practice, storage solutions are often only technical storage, which is short-termed, without any authenticity or preservation of context. Systems that are used for management of the information such as museum system cannot, in most cases, provide long-term preservation functionality. Joint processes through e-infrastructures could mean a lower cost and higher quality than if produced at each individual authority which also contributes to an increased availability of digital information.

Within CH institutions, databases, files are often stored in several sizes. If you take for example images - they are often stored in multiple copies in the CH institution database but also saved on a separate server in a high-resolution format. In addition, raw-data files are stored on a local server. If such as comprehensive and complete material as possible should be tested (including image files in high resolution and raw-data file format, but also texts, pre-listings and links), it probably means additional technical work for system administrators of the database.

The most important pre-condition for the tests is to clarify what the institutions benefits from this solution – what are the functions we will test that do not exist today and if those functionalities are already available/used, what can be improved or more efficient. This is also a crucial issue for selection of data for tests.

All of the interested CH institutions are connected to Internet through the Swedish e-Infrastructure provider/NREN, SUNET. However, in order to estimate how many resources are needed from the institutions to be able to deliver data in e-CSG and to test the preservation functions we need to describe more specifically the data amount and path from the institutional database(s) or other storage solutions to the proposed e-infrastructure and what it means from for example security aspect.

### Objectives

General guidelines, proposals for division of responsibility and how an integrated digital information management and a coordinated and cost-effective digital preservation should be designed and for making information accessible and usable in digital environments are key issues for Digisam to handle.

Digisam will contribute to a proposal for national guidelines for an integrated digital information management and a coordinated and cost-effective digital long-term preservation of collections and archives, including audiovisual archives, can be done at the state institutions that collect, preserve and make available cultural material and cultural information. A central issue is finding common and cost effective solutions for long-term digital preservation of common standards for metadata is a central and critical issue for achieving the overall goal.

The proposal should also include a role and responsibility for the work of aggregation, making available digital and digital preservation within the state's cultural heritage sector and highlight the needs and conditions for the use of common and cost effective solutions for long-term digital preservation of common standards for state authorities as well as the basic requirements that are necessary in a common basic infrastructure and services which can facilitate this process and be developed further.

## Belgium (BELSPO)

### Pilot lead partner

Belspo, the Belgian Science Policy, is the project partner that is responsible in WP5 for the organisation of the proof of Concepts. Belspo is not a cultural heritage itself but reaches out to federal cultural heritage institutions for obtaining data, taking up tools from WP3 to test and check out the concepts defined in the roadmap. The four cultural showed their interest in participating actively in the project: the Royal Institute for Arts (KIK), the Royal Museum for Arts and History (KMKG), the Royal Library (KB) and the State Archives (RA). The data of the KIK and KMSG are of the same type while the KB and the RA have didgital documents.

### Environment and constraints of the pilot

The above mentioned cultural institutions already have experience in archiving their digital data. They will make part of this archived data available via the e-infrastructure environment provided by the Belgian National Grid Infrastructure (BEgrid). They are already all connected to the Belgian research network.

The cultural institutes wish to use the formats and structure of the archiving method they have chosen. As they took care of following established standards in the field they hope that interoperability will not be a problem.

Problems could arise when the e-CSG would show not to be usable on the BEgrid infrastructure. Problems to be solved are the attainment of robot certificates for e-CSG, the membership of the Belgian authentication federation for those institutes or for the DCH community.

IPR problems could also arise but this is a topic that is included in the DoW.

### Objectives

Key issues for the Belgian participants is testing of real life data and situations so that on a positive result of the PoC the basis is laid for a sustainable DCH data infrastructure and corresponding services. They also expect that the cooperation with the e-infrastructures will result in novel solutions for the long-term preservation of their data. The common definition of tools and services should also accelerate a still better exploitation of the archived data.

## Estonia (EVKM)

## Poland (PSNC)

### Pilot lead partner

PSNC

### Environment and constraints of the pilot

The Polish CH community currently uses a number of already existing software components. These are coordinated and developed in a number of projects led by PSNC and the Polish national data storage (nds.psnc.pl).

Digital Library of Wielkopolska

### Objectives

The de facto deployment consists of the use of dArceo, and dLibra as user facing services, and the PLATON Popular Archive Service as a data storage solution. While this deployment configuration is known to work in a productive setting it is not known whether it will, without further development, satisfy the requirements of the DCH preservation roadmap coming out of WP3.

Alternatives exist in the CH community as well as in the Grid and Cloud e-Infrastructure communities that may be suitable as replacements for some or even all of the current components.

For example, the eCultural Science Gateway (eCSG) service (developed in the INVENT project) is very popular in other European member states such as Italy, Belgium and Sweden. For due diligence purposes this user portal component should be evaluated as part of the proof of concept.

On the data storage backend, several solutions exist. While the current PLATON service “Popular Archive Service” is known to work in production environments, there may be alternatives that satisfy the DCH preservation roadmap better and may have better sustainability options than existing solutions deployed in Poland. Next to the obvious PLATON deployment, large European Grid e-Infrastructures offer reliable distributed data storage services with a wide range of data retention policies. Similar offers are emerging in the Cloud Computing domain, where Cloud storage may offer advantages over Grid offers (or in fact have yet unknown disadvantages).

This Proof of Concept aims to test various combinations of deployments, combining existing Polish solutions (dArceo, dLibra, PLATON PAS) with existing and emerging alternatives (e.g. Grid or Cloud storage, eCSG user portal).

The main overarching goal of this Proof of Concept is therefore two-fold:

* Assess the suitability of existing Polish solutions compared to the DCH preservation roadmap,
* Examine alternative solutions and any necessary integration work

## Hungary (NIIFI)

# Common assessment criteria

- initial list of common criteria to assess results

 --> add to D5.1

 --> usability of technical tools

 --> service feasibility (coming from D3.1

 --> preservation tasks, preservation metadata, obsolete ("dark") data

 --> data integrity, etc.

# Conclusion

# Annex A – SCRUM: Agile Project Management

**Tables:**

|  |  |
| --- | --- |
| **Column 1** | **Column 2** |
| Text | Text |
| Text | Text |

Table 3: Sample table

1. http://en.wikipedia.org/wiki/Waterfall\_model [↑](#footnote-ref-1)
2. http://en.wikipedia.org/wiki/Planning\_poker [↑](#footnote-ref-2)
3. http://en.wikipedia.org/wiki/User\_story [↑](#footnote-ref-3)
4. The Facilitator may provide templates and storage location for the material, but it is the Product Team’s responsibility to record the discussed topics. [↑](#footnote-ref-4)
5. For the duration of the DCH-RP project, EGI.eu will guarantee access free of charge to the collaboration tools, for all project members, on the basis of their current deployment. [↑](#footnote-ref-5)
6. Note the use of the “DCH-RP:” namespace in the name of the DCH-RP Wiki landing page. [↑](#footnote-ref-6)